Claims

1. A method of producing an iPS cell, comprising bringing (a) Oct3/4 or a nucleic acid that encodes the same, (b) Klf4 or a nucleic acid that encodes the same, (c) Sox2 or a nucleic acid that encodes the same, (d) L-Myc or a nucleic acid that encodes the same, (e) a functional inhibitor of p53, and (f) Lin28 or Lin28b or a nucleic acid that encodes the same, into contact with a somatic cell in vitro.
2. The method according to claim 1, comprising transferring (a) a nucleic acid that encodes Oct3/4, (b) a nucleic acid that encodes Klf4, (c) a nucleic acid that encodes Sox2, (d) a nucleic acid that encodes L-Myc (e) a functional inhibitor of p53, and (f) a nucleic acid that encodes Lin28 or Lin28b, to a somatic cell.
3. An iPS cell induction promoting agent comprising (a) a nucleic acid that encodes Oct3/4, (b) a nucleic acid that encodes Klf4, (c) a nucleic acid that encodes Sox2, (d) a nucleic acid that encodes L-Myc, (e) a functional inhibitor of p53, and (f) a nucleic acid that encodes Lin28 or Lin28b.
4. The method according to claim 1 or 2 or the agent according to claim 3, wherein the functional inhibitor of p53 is selected from the group of an siRNA against p53, an shRNA against p53, a DNA that encodes an siRNA or shRNA against p53, and a nucleic acid that encodes a dominant negative mutant of p53.
5. The method according to claim 2 or 4 or the agent according to claim 3 or 4, wherein at least one nucleic acid selected from the group consisting of the foregoing (a), (b), (c), (d) and (f) is transferred in the form of an episomal vector.
6. The method or agent according to claim 5, wherein the episomal vector is a self-removal vector shedding from the iPS cell by the 5th passage at a frequency of 50% or more.
7. The method or agent according to claims 5 or 6, wherein at least (d) and (f) are included in the same episomal vector, and are joined polycistronically in the order of (d) and (f) in the orientation from 5' to 3'.
8. The method or agent according to claim 5 or 6, wherein the number of kinds of episomal vectors introduced into the somatic cell is three or more, wherein (a) is incorporated in a first kind of vector, (b) and (c) are incorporated in a second kind of vector, as well as (d) and (f) are incorporated in a third kind of vector.

9. The method or agent according to any one of claims 5 to 8, wherein the episomal vector has loxP sequences placed in the same orientation on the 5' and 3' sides of a vector constituent essential for the replication of the nucleic acid.

10. The method according to any one of claims 1 to 2 and 4 to 9 or the agent according to any one of claims 3 to 9, wherein the somatic cell or the iPS cell is a human cell.

11. The method according to claim 10, comprising culturing a cell in the absence of an ingredient from a non-human animal during the period from contact of the foregoing factors (a) to (f), with the somatic cell to the establishment of an iPS cell.

12. The method according to claim 11, wherein human cells are used as feeder cells, or wherein no feeder cells are used.

13. The method according to claim 12, wherein the feeder cells are derived from the same individual as the somatic cell.

14. The method according to any one of claims 1-2 or 4 to 13, wherein the nuclear reprogramming substances used exclude Nanog or a nucleic acid that encodes the same; or the agent according to any one of claims 3 to 10, wherein the agent excludes a reprogramming substance which is Nanog or a nucleic acid that encodes the same.